REMARKS

Claims 1 and 6-12 are pending. Claims 2-5 were previously cancelled in a Preliminary Amendment dated April 14, 2006.

Specification

The Office Action provides guidelines for the Arrangement of the Specification per 37 C.F.R. 1.77(b).

The Applicants submit that the present specification comports with the suggested (not required) guidelines of 37 C.F.R. 1.77(b).

Claim Rejection Under 35 U.S.C. § 103

Claims 1, 6, 9, and 10 were rejected under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 5,590,387 to Schmidt in view of U.S. Patent No. 3,617,253 to Amiet and U.S. Patent No. 4,212,736 to Dunkley.

According to the claimed subject matter per independent claims 1 and 6, a granular metal powder includes metal particles having an average particle diameter of at least 1 nm and at most 100 nm, an organic compound, a predetermined content of water, and an apparent density of at least 1.0 g/ml and at most 5.0 g/ml. Thereby, as taught in the instant specification, the granular metal powder imparts conductivity to rubber, resin, adhesive, and conductive wiring material, such as, conductive paste and in a catalytic material, and has excellent redispersion in a solvent (*see, e.g.*, pg. 3, lines 5-11 and pg. 17, lines 5-10 in the Substitute Specification filed April 14, 2006).

The Office Action asserts that Schmidt teaches a metal powder having starting metal particles that are less than 100 nm in size. The Office Action asserts that Amiet teaches apparent density to be a result effective variable. The Office Action avers that Dunkley teaches water content to be a result effective variable. The Office Action concludes that it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify these variables. The Office Action asserts that it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

The Examiner is directed to MPEP § 2144.05(II)(B) under the heading "Only Result-Effective Variables Can Be Optimized," which sets forth the applicable standard for determining result-effective variables:

> A particular parameter must first ***be recognized*** as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. (citing *In re Antonie*, 195 USPQ 6 (CCPA 1977)) (emphasis added).

In the instant case, Schmidt is *silent* regarding the apparent density and the water content. The average particle diameter of the metal particles in Amiet is greater than 100 μm, which is **six orders of magnitude greater** than the claimed average particle diameter of at least 1 nm. Amiet states, "[the] apparent density of the powder is about 0.6." Amiet fails to disclose or suggest, at a minimum, "...an apparent density of **at least 1.0 g/ml and at most 5.0 g/ml**," as recited in claims 1 and 6. Thus, Amiet cannot be relied upon to cure the deficiencies of Schmidt and Dunkley.

Dunkley discusses a method of treating a metal powder produced by water atomization of liquid metal. However, Dunkley describes the water content of a slurry containing the metal

powder, not the water content in the granular metal powder. Thus, Dunkley cannot be relied upon to cure the deficiencies of Schmidt and Amiet.

The cited references are silent regarding the combination of the granular metal powder including metal particles having an average particle diameter of at least 1 nm and at most 100 nm, a water content of at least 0.1 wt% and at most 1.5 wt%, and an apparent density of at least 1.0 g/ml and at most 5.0 g/ml, as required by claims 1 and 6. Therefore, there is no basis for alleging obviousness thereof based on discovering an optimum value of a result effective variable. Accordingly, it is respectfully submitted that the claimed features would not have been obvious in view of the cited references because the cited references do not appear to recognize the claimed parameters, **in the particular combination set forth in the claims**, as achieving a recognized result.

In rejecting a claim under 35 U.S.C. § 103, the Examiner is required to discharge the initial burden by, *inter alia*, making **"clear and particular"** factual findings as to a **specific understanding** or **specific technological principle** which would have **realistically** impelled one having ordinary skill in the art to modify an applied reference to arrive at the claimed invention based upon facts, -- not generalizations. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 57 USPQ2d 1161 (Fed. Cir. 2000); *Ecolochem Inc. v. Southern California Edison, Co.*, 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Kotzab*, *supra*; *In re Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999). That burden has not been discharged, as the Examiner has provided no factual basis for modifying apparent density or the water content, as required by claims 1 and 6.

None of the references, individually or combined, disclose or suggest, at a minimum, "...a granular metal powder that: (a) is produced by the steps of: (a1) preparing a solution

comprising: (a1a) a medium selected from the group consisting of water, an organic solvent, and a mixture of them; (a1b) metal particles having an average particle diameter of at least 1 nm and at most 100 nm; and (a1c) an organic compound capable of being adsorbed on the surface of the metal particles; and (a2) drying a medium selected from the group consisting of the water and the organic solvent; (b) contains the organic compound; (c) has an apparent density of at least 1.0 g/ml and at most 5.0 g/ml; and (d) contains water with a content of at least 0.1 wt% and at most 1.5 wt%," as recited in claim 1. None of the cited references, individually or combined, disclose or suggest, at a minimum, "...a granular metal powder that: (a) comprises: (a1) metal particles having an average particle diameter of at least 1 nm and at most 100 nm; and (a2) an organic compound capable of being adsorbed on the surface of the metal particles; (b) has an apparent density of at least 1.0 g/ml and at most 5.0 g/ml; and (c) contains water with a content of at least 0.1 wt% and at most 1.5 wt%," as recited in claim 6.

Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmidt. Claims 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schmidt.

Claims 7 and 11 depend from claim 1, and claims 8 and 12 depend from claim 6, and include all of the features of their base claim plus additional features, which are not taught or suggested by the cited references. Therefore, for at least these reasons, it is respectfully submitted that claims 7, 8, 11, and 12 are also patentably distinguishable over the cited references.

Conclusion

In view of the above remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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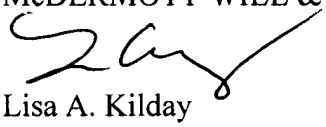

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